The synthesis of unsymmetrical azaphthalocyanines *via* transetherification

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The introduction of a functional group on the periphery of substituted aryloxy azaphthalocyanines (AzaPc) seems to be very promising because it allows binding AzaPc to biomolecules.

Common synthetic methods giving symmetrical molecules cannot be used for unsymmetrical aryloxy AzaPc derivatives, because alkoxides, which are used as initiators of cyclization reactions, cause transetherification due to strongly electron-deficient carbons 5 and 6 of pyrazine-2,3-dicarbonitrile, the precursors for AzaPc.

This work describes two reaction methods leading to the synthesis of planar substituted aryloxy AzaPc. The first method was based on a template effect of the central metal. However, low yields resulted to change of the concept for introduction a functional group on the periphery AzaPc. The cyclization in butanol with magnesium butoxide, which was originally precluded due to adverse transetherification reaction, was successfully used for unsymmetric AzaPc preparation bearing one functional group in the molecule. This process, called controlled transetherification, seems to be a promising method for the preparation of such compounds. Further, the metal-free derivative as well as zinc complex of AzaPc were prepared.

The work includes also the photochemical and photophysical data of prepared compounds.